

Amendments to the Claims:

Claims 1 - 3, 5 - 6, and 13 - 23 are currently pending with claims 1 - 3 and 5 - 6 having been amended, claim 4 having been canceled, and claims 13 - 23 having been added. Claims 7 - 12 were previously withdrawn from consideration. This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

- 1 1. (Currently Amended): A thin-film magnetic head on a substrate having a
2 slider surface comprising: including: an inductive element and magneto-resistive effect element,
3 ~~wherein~~ a first magneto-resistive effect element configured to detect a magnetic
4 signal from a magnetic recording medium; and
5 a second magneto-resistive effect element disposed adjacent to the first magneto-
6 resistive effect element and configured to measure an amount of lapping of the first magneto-
7 resistive effect element along the slider surface are arranged in proximity to each other on a
8 substrate, and
9 ~~wherein one surface of said substrate perpendicular to the surface formed with~~
10 ~~said first magneto-resistive effect element and said second magneto-resistive effect element~~
11 ~~constitutes a slider surface.~~

- 1 2. (Currently Amended): ~~A~~ The thin-film magnetic head according to ~~Claim~~
2 claim 1, wherein said first magneto-resistive effect element and said second magneto-resistive
3 effect element each include a magneto-resistive effect film, a first electrode, and a second
4 electrode, and wherein the magneto-resistive effect film is disposed between the first electrode
5 and the second electrode, formed by being sandwiched between electrodes, and wherein said two
6 ~~sets of the electrodes and said magneto-resistive effect films~~ and wherein the first magneto-
7 resistive effect element and the second magneto-resistive effect element have substantially
8 similar geometrie shapes.

3. (Currently Amended): A The thin-film magnetic head according to ~~Claim~~
claim 1, wherein:

said first magneto-resistive effect element includes a first magneto-resistive effect
film, a first shield disposed adjacent to a first side of the first magneto-resistive effect film, and a
second shield disposed adjacent to a second side of the first magneto-resistive effect film, formed
~~by being sandwiched by a lower shield and an upper shield,~~ said first magneto-resistive effect
film, and said upper first shield, and lower shields said second shield being stacked on said
substrate,

~~wherein~~ said second magneto-resistive effect elements includes a second
magneto-resistive effect film ~~constituting said second magneto-resistive effect element, and~~
and the first magneto-resistive effect film and the second magneto-resistive effect
film are is formed substantially coplanar ~~in the same plane as said first magneto-resistive effect~~
~~film, and~~

~~wherein no shield is formed in the vicinity of said second magneto-resistive effect~~
element.

4. (Canceled)

5. (Currently Amended): A The thin-film magnetic head according to ~~Claim~~
claim 1, wherein said substrate is formed of a non-magnetic material of Al_2O_3 -TiC or SiC.

6. (Currently Amended): A thin-film magnetic head on a substrate having an
air bearing surface including: ~~an inductive element and magneto-resistive effect element,~~
~~wherein~~ a first magneto-resistive effect element configured to detect a magnetic
signal from a magnetic recording medium;[[,]]

a first connection terminal configured to detect ~~for detecting~~ the magnetic
resistance of said first magneto-resistive effect element;[[,]]

7 a second magneto-resistive effect element ~~arranged in proximity~~ adjacent to said
8 first magneto-resistive effect element and configured to measure an amount of lapping of the first
9 magneto-resistive effect element along the slider surface; and

10 a second connection terminal ~~for detecting~~ configured to detect the resistance of
11 said second magneto-resistive effect element ~~are arranged on a substrate, and~~

12 ~~wherein one surface of said substrate perpendicular to the surface formed with~~
13 ~~said first magneto-resistive effect element and said second magneto-resistive effect element~~
14 ~~constitutes a slider surface.~~

1 7. (Withdrawn) A method of manufacturing a thin-film magnetic head
2 including an inductive element and magneto-resistive effect element, comprising the steps of:
3 forming a plurality of first magneto-resistive effect elements and a plurality of
4 second magneto-resistive effect elements on a substrate;
5 cutting said assembly into sliders each including said first magneto-resistive effect
6 element and said second magneto-resistive effect element; and
7 mounting said each of said sliders on a lapping machine and lapping the surface
8 perpendicular to said first magneto-resistive effect element and said second magneto-resistive
9 effect element;
10 wherein said lapping process is carried out for each slider.

1 8. (Withdrawn) A method of manufacturing a thin-film magnetic head
2 according to Claim 7,
3 wherein the resistance value of said second magneto-resistive effect element is
4 detected in said lapping step, and when selected one of said resistance value and the height of
5 said second magneto-resistive effect element as converted from said resistance value has reached
6 a predetermined value, said lapping step is completed.

1 9. (Withdrawn) A method of manufacturing a thin-film magnetic head
2 including an inductive element and magneto-resistive effect element, comprising the steps of:

3 forming a plurality of first magneto-resistive effect elements and a plurality of
4 second magneto-resistive effect elements on a substrate;
5 cutting said assembly into sliders each including one of said first magneto-
6 resistive effect elements and one of said second magneto-resistive effect elements; and
7 mounting at least one of said sliders on a lapping machine and lapping the surface
8 perpendicular to said first magneto-resistive effect element and said second magneto-resistive
9 effect element;
10 wherein the resistance value of said second magneto-resistive effect element
11 formed for each slider is detected, and when selected one of said resistance value and the height
12 of said second magneto-resistive effect element converted from said resistance value reaches a
13 predetermined value, said lapping process is completed.

1 10. (Withdrawn) A method of manufacturing a thin-film magnetic head
2 according to Claim 7, wherein the resistance value of said second magneto-resistive effect
3 element is detected in said lapping step, and when selected one of said resistance value and the
4 height of said second magneto-resistive effect element as converted from said resistance value
5 has reached a predetermined value, said lapping step is completed by bringing the lapped surface
6 of said slider and the surface of the lapping stool of said lapping machine out of contact with
7 each other.

1 11. (Withdrawn) A method of manufacturing a thin-film magnetic head
2 according to Claim 9, wherein the resistance value of said second magneto-resistive effect
3 element is detected in said lapping step, and when selected one of said resistance value and the
4 height of said second magneto-resistive effect element as converted from said resistance value
5 has reached a predetermined value, said lapping step is completed by bringing the lapped surface
6 of said slider and the surface of the lapping stool of said lapping machine out of contact with
7 each other.

1 12. (Withdrawn) A method of manufacturing a thin-film magnetic head
2 according to Claim 9, wherein the resistance value of said second magneto-resistive effect

3 element is detected in said lapping step, and when selected one of said resistance value and the
4 height of said second magneto-resistive effect element as converted from said resistance value
5 has reached a predetermined value, the lapping process for only a particular slider is completed.

1 13. (New): A thin-film magnetic head comprising:
2 a first magneto-resistive effect element configured to read a magnetic signal
3 recorded on a magnetic disk and having an end portion that is configured to be exposed to an air
4 bearing surface; and
5 a second magneto-resistive effect element adjacent to the first magneto-resistive
6 effect element and configured to measure an amount of lapping of the first magneto-resistive
7 effect element at the air bearing surface.

1 14. (New): A thin-film magnetic head on a substrate having a slider surface
2 comprising:
3 a magneto-resistive effect element configured to sense a magnetic signal recorded
4 on a magnetic recording medium;
5 a first connection terminal configured to present a signal indicative of a detected
6 magnetic resistance of the magneto-resistive effect element;
7 a second connection terminal adjacent to the magneto-resistive effect element
8 configured to present a signal received from a magneto-resistive effect element, wherein the
9 signal is indicative of a measured amount of lapping of the magneto-resistive effect element
10 along the slider surface.

1 15. (New): The thin-film magnetic head of claim 14, wherein the slider
2 surface is perpendicular to a surface of the substrate that includes the first connection terminal
3 and the second connection terminal.

1 16. (New): The thin-film magnetic head according to claim 1, wherein an end
2 portion of the second magneto-resistive effect element constitutes at least a portion of the slider
3 surface and is configured to be lapped to change a resistance characteristic of the second

4 magneto-resistive effect in order to measure the amount of lapping of the first magneto-resistive
5 effect element.

1 17. (New): The thin-film magnetic head according to claim 1, further
2 comprising an inductive element coupled to the first magneto-resistive effect element and
3 configured to write information on a magnetic recording medium.

1 18. (New): The thin-film magnetic head according to claim 1, wherein an end
2 portion of the first magneto-resistive effect element constitutes a portion of the slider surface.

1 19. (New): The thin-film magnetic head according to claim 1, wherein the
2 thin-film magnetic head has is approximately 1.2 millimeters wide, approximately 1 millimeter
3 long, and approximately 0.3 to approximately 0.33 millimeters high.

1 20. (New): The thin-film magnetic head according to claim 3, wherein the
2 second magneto-resistive effect element is not shielded.

1 21. (New): The thin-film magnetic head according to claim 6, wherein a
2 resistance characteristic of the second magneto-resistive effect element is configured to change
3 as a portion of the second magneto-resistive effect element is removed during lapping.

1 22. (New): The thin-film magnetic head according to claim 6, wherein an end
2 portion of the second magneto-resistive effect element constitutes at least a portion of the slider
3 surface and is configured to be lapped to change a resistance characteristic of the second
4 magneto-resistive effect to measure the amount of lapping of the first magneto-resistive effect
5 element.

1 23. (New): A thin-film magnetic head on a substrate having a slider surface
2 comprising:
3 a first magneto-resistive effect element configured to detect a magnetic signal
4 from a magnetic recording medium, wherein the first magneto-resistive effect element includes a
5 first magneto-resistive effect film, an upper shield disposed above the first magneto-resistive

6 effect film, and a lower shield disposed below the first magneto-resistive effect film, the first
7 magneto-resistive effect film, the upper shield, and the lower shield being stacked on said
8 substrate; and
9 a second magneto-resistive effect element adjacent to the first magneto-resistive
10 effect element and configured to measure an amount of lapping of the first magneto-resistive
11 effect element along the slider surface, wherein said second magneto-resistive effect elements
12 includes a second magneto-resistive effect film,
13 wherein the first magneto-resistive effect film and the second magneto-resistive
14 effect film are formed substantially coplanar.